GT PATHWAYS COMPETENCY: PROBLEM SOLVING
Required in GT Pathways Categories: for future adoption in GT-MA1

Criteria for Problem Solving
Competency in problem solving represents a student’s ability to design, evaluate, and implement a strategy to answer a question or achieve a goal.

Student Learning Outcomes (SLOs)

Students should be able to:

1. Define a Problem
   a. Construct a detailed and comprehensive problem statement or goal.
   b. Identify relevant contextual factors.

2. Propose a Strategy
   a. Identify reasonable approaches to solving the problem within the given context.

3. Evaluate Potential Strategies
   a. Provide an evaluation of the potential strategy(ies) which may include:
      i. the history of the problem,
      ii. the logic behind the potential strategy(ies),
      iii. the feasibility of the proposed strategy(ies), and
      iv. the potential impacts of the proposed strategy(ies).
   b. Choose a feasible strategy.

4. Apply a Strategy
   a. Implement chosen approach(es).
   b. Gauge success of the chosen strategy(ies) and revise as needed.
5. **Evaluate Results**
   
a. Discuss and review results relative to the context of the problem.
b. Make recommendations for further work (where applicable).
PROBLEM SOLVING RUBRIC

This rubric is meant to be an *optional* course design and assessment tool. Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet not meet level one performance criteria.

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<tr>
<td><strong>Define a Problem</strong></td>
<td>Demonstrates the ability to construct a detailed problem statement that identifies all relevant contextual (situational) factors.</td>
<td>Demonstrates the ability to construct a clear problem statement that identifies most relevant contextual (situational) factors.</td>
<td>An attempt at a problem statement is evident but it lacks depth and only some relevant (situational) factors are identified.</td>
<td>Demonstrates a limited ability in identifying a problem statement or related contextual (situational) factors.</td>
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<td><strong>Propose a Strategy</strong></td>
<td>Proposes one or more strategies that indicate a deep comprehension of the problem. Solution strategies address all contextual (situational) factors as identified in the problem statement.</td>
<td>Proposes one or more strategies that indicate comprehension of the problem. Solution strategies address some of the contextual (situational) factors identified in the problem statement.</td>
<td>Proposes one strategy that indicates a vague understanding of the problem. Strategy indirectly addresses the problem statement.</td>
<td>Proposes a strategy that is difficult to evaluate because it is vague or only indirectly addresses the problem statement.</td>
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<td><strong>Evaluate Potential Strategies</strong></td>
<td>Evaluation of solution(s) contains a thorough and insightful explanation. Considers the following as deemed appropriate by the context: history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution.</td>
<td>Evaluation of solution(s) contains a thorough explanation. Considers the following as deemed appropriate by the context: history of problem, review of logic/reasoning, examines feasibility of solution, and weighs impacts of solution.</td>
<td>Evaluation of solution(s) contains a reasonable explanation but lacks depth. Considers the following as deemed appropriate by the context: history of problem, review of logic/reasoning, examines feasibility of solution, and weighs impacts of solution.</td>
<td>Evaluation of solution(s) contains a cursory, surface level explanation. Considers the following as deemed appropriate by the context: history of problem, review of logic/reasoning, examines feasibility of solution, and weighs impacts of solution.</td>
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<td><strong>Apply a Strategy</strong></td>
<td>Completely applies appropriate and efficient (streamlined) procedures and/or strategies throughout the solution process within a specific context (situation).</td>
<td>Applies procedures and/or strategies for the problem with minor errors or unnecessary steps through the solution process within a specific context (situation).</td>
<td>Applies procedures and/or strategies for the problem with multiple minor errors or a major error through the solution process within a specific context (situation).</td>
<td>Applies procedures and/or strategies for the problem with major errors through the solution process within a specific context (situation).</td>
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<td><em>Student work demonstrates no need for multiple attempts for approaches to solution of problem to gauge success of strategy.</em></td>
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<td><strong>Evaluate Results</strong></td>
<td>Results are thoroughly discussed and reviewed relative to the problem statement. Detailed consideration of the need for further work is identified (where applicable).</td>
<td>Results are identified and reviewed relative to the problem statement. Some consideration of the need for further work is identified (where applicable).</td>
<td>Results are identified but review lacks depth. Little consideration of the need for further work is identified (where applicable).</td>
<td>Results are identified but review is cursory and superficial. No consideration of the need for further work is included (where applicable).</td>
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This rubric was adapted from the Association of American Colleges and Universities (AAC&U) VALUE rubrics and is also aligned with the Interstate Passport Initiative Learning Outcomes. The original VALUE rubrics may be accessed at [http://www.aacu.org/value-rubrics](http://www.aacu.org/value-rubrics). The Interstate Passport Initiative Learning Outcomes can be accessed at [http://www.wiche.edu/passport/learningOutcomesCriteria](http://www.wiche.edu/passport/learningOutcomesCriteria).